

Amendments to the Claims

1. (Currently Amended) An information recording apparatus for recording information on a recording medium by forming marks different in a physical property from non-recorded portions with energy injected into the recording medium, comprising:

energy generation means which generates recording energy;

position control means which controls an injecting position of the recording energy output from the energy generation means for the recording medium;

drive means which drives the energy generation means;

switching means which selectively switches information based on user's data or test information to be supplied to the drive means;

reading means which reads marks recorded on the recording medium;

evaluation means which evaluates a reproduced signal amplitude obtained from the reading means; and

recording condition control means which controls a recording condition of an evaluation result obtained from the evaluation means,

wherein in a case of reproducing the marks having the test information, a control operation of the position control means is unchanged in a first reproduction in comparison with a time when the test information is recorded and changed in a second reproduction in comparison with a time when the test information is recorded, and

wherein the recording condition is controlled in accordance with values of a signal amplitude in the first reproduction and a signal amplitude in the second reproduction.

2-7. (Canceled)

8. (Previously Presented) The apparatus according to claim 1, further comprising vibration means which vibrates the reading means in a direction perpendicular to a main scanning direction on the recording medium.

9. (Canceled)

10. (Previously presented) The apparatus according to claim 1, wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, pieces of the test information, each of which is different, are recorded on a plurality of tracks.

11. (Canceled)

12. (Previously presented) An information recording method for recording information on a recording medium by forming marks different in a physical property from non-recorded portions with energy injected into the recording medium, comprising the steps of:

controlling energy generation means with irradiation on the recording medium to be positioned on a predetermined area on the recording medium;

irradiating a recording energy on the recording medium to record test information;

reproducing, as a first reproduction, the test information without a change of the recording and the position control;

reproducing, as a second reproduction, the test information with a change of the recording and the position control; and

controlling a recording condition in accordance with values of a signal amplitude in the first reproduction step and a signal amplitude in the second reproduction step.

13. (Previously presented) The method according to claim 12, in the first and second reproduction steps, either a stop or a start of a tracking-offset amount, of a tracking polarity, or of a tracking operation is changed.

14. (Previously presented) An information recording apparatus for recording information on a recording medium by forming marks different in a physical property from a non-recorded portion with energy injected into the recording medium, comprising:

energy generation means which generates recording energy;

position control means which controls an injecting position of the recording energy output from the energy generation means for the recording medium;

drive means which drives the energy generation means;

switching means which switches information based on a user's data or test information to be supplied to the drive means;

reading means which reads marks recorded on the recording medium;

evaluation means which evaluates a reproduced signal obtained from the reading means;

and

recording condition control means which controls a recording condition of an evaluation result obtained from the evaluation means,

wherein in a case of reproducing the marks having the test information, a control operation of the position control means is unchanged in a first reproduction in comparison with a time when the test information is recorded and changed in a second reproduction in comparison with a time when the test information is recorded,

wherein the recording condition is controlled in accordance with values of a signal amplitude in the first reproduction and a signal amplitude in the second reproduction, and

wherein the changed content of the control operation for the position control means is a stop or a start of a tracking offset amount carried out by the position control means.

15. (Previously presented) An information recording apparatus for recording information on a recording medium by forming marks different in a physical property from a non-recorded portion with energy injected into the recording medium, comprising:

energy generation means which generates recording energy;

position control means which controls an injecting position of the recording energy output from the energy generation means for the recording medium;

drive means which drives the energy generation means;

switching means which switches information based on a user's data or test information to be supplied to the drive means;

reading means which reads marks recorded on the recording medium;

evaluation means which evaluates a reproduced signal obtained from the reading means;

and

recording condition control means which controls a recording condition of an evaluation result obtained from the evaluation means,

wherein in a case of reproducing the marks having the test information, a control operation of the position control means is unchanged in a first reproduction in comparison with a time when the test information is recorded and changed in a second reproduction in comparison with a time when the test information is recorded,

wherein the recording condition is controlled in accordance with values of a signal amplitude in the first reproduction and a signal amplitude in the second reproduction, and

wherein the changed content of the control operation for the position control means is a tracking polarity carried out by the position control means.

16. (Previously presented) An information recording apparatus for recording information on a recording medium by forming marks different in a physical property from a non-recorded portion with energy injected into the recording medium, comprising:

energy generation means which generates recording energy;

position control means which controls an injecting position of the recording energy output from the energy generation means for the recording medium;

drive means which drives the energy generation means;

switching means which switches information based on a user's data or test information to be supplied to the drive means;

reading means which reads marks recorded on the recording medium;

evaluation means which evaluates a reproduced signal obtained from the reading means;

and

recording condition control means which controls a recording condition of an evaluation result obtained from the evaluation means,

wherein in a case of reproducing the marks having the test information, a control operation of the position control means is unchanged in a first reproduction in comparison with a time when the test information is recorded and changed in a second reproduction in comparison with a time when the test information is recorded,

wherein the recording condition is controlled in accordance with values of a signal amplitude in the first reproduction and a signal amplitude in the second reproduction, and

wherein the changed content of the control operation for the position control means is a

tracking operation carried out by the position control means.

17. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking-offset amount, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on adjacent tracks,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

18. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking polarity, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on adjacent tracks,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

19. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking operation, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on adjacent tracks,

wherein in a case where the test information is supplied to the drive means and recorded

on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

20. (New) The apparatus according to claim 1, further comprising vibration means which vibrates the reading means in a direction perpendicular to a main scanning direction on the recording medium;

wherein the changed content of the control operation for the position control means is a stop or a start of a target track, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on adjacent tracks,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

21. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking-offset amount, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on every track,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

22. (New) The apparatus according to claim 1, wherein the changed content of the control

operation for the position control means is a stop or a start of a tracking polarity, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on every track;

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

23. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking operation, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on every track;

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

24. (New) The apparatus according to claim 1, further comprising vibration means which vibrates the reading means in a direction perpendicular to a main scanning direction on the recording medium;

wherein the changed content of the control operation for the position control means is a stop or a start of a target track, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on every track,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the

conversion means is used as the test information.

25. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking-offset amount, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on adjacent tracks,

wherein the changed content of the control operation for the position control means is a target track indicated by the position control means,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

26. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking polarity, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on adjacent tracks,

wherein the changed content of the control operation for the position control means is a target track indicated by the position control means,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

27. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking operation, indicated by

the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on adjacent tracks,

wherein the changed content of the control operation for the position control means is a target track indicated by the position control means,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

28. (New) The apparatus according to claim 1, further comprising vibration means which vibrates the reading means in a direction perpendicular to a main scanning direction on the recording medium;

wherein the changed content of the control operation for the position control means is a stop or a start of a target track, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on adjacent tracks,

wherein the changed content of the control operation for the position control means is a target track indicated by the position control means,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

29. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking-offset amount, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on every

track,

wherein the changed content of the control operation for the position control means is a target track indicated by the position control means,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

30. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking priority, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on every track,

wherein the changed content of the control operation for the position control means is a target track indicated by the position control means,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

31. (New) The apparatus according to claim 1, wherein the changed content of the control operation for the position control means is a stop or a start of a tracking operation, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on every track,

wherein the changed content of the control operation for the position control means is a target track indicated by the position control means,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.

32. (New) The apparatus according to claim 1, further comprising vibration means which vibrates the reading means in a direction perpendicular to a main scanning direction on the recording medium;

wherein the changed content of the control operation for the position control means is a stop or a start of a target track, indicated by the position control means in a case where the test information is supplied to the drive means and recorded on the recording medium, and in-phase mark arrangement is recorded on every track,

wherein the changed content of the control operation for the position control means is a target track indicated by the position control means,

wherein in a case where the test information is supplied to the drive means and recorded on the recording medium, the test information inconsistent with a conversion rule of a conversion means is used,

wherein test information containing a longer run-length than a run-length rule of the conversion means is used as the test information.